KNOWLEDGE & CURRICULUM (½)

UNIT I: KNOWLEDGE AND CURRICULUM

Knowledge, wisdom –meaning – distinction between knowledge and wisdom– knowledge with skill, Information - Meaning of and need for curriculum – Domains of curriculum – Epistemological basis of Curriculum – forms of knowledge–logical grammar of disciplines – Curriculum organization - subject matter and curriculum organization – types of curricula: subject centred, co-related, fused, core and student centered – their relative values and weaknesses – Differentiating curriculum framework, curriculum and syllabus; their significance in school education – role of the textbook

INTRODUCTION

Curriculum is a conceptual scheme and a dynamic entity in the school setting. Since many educationists attribute many things to the curriculum, a generally acceptable definition of curriculum has so far become elusive. In ancient societies, need for a curriculum has not acute, because the knowledge to be mastered was limited. But, his today's context, when the available body of knowledge is enormous and complex, the curriculum has assumed great significance, since the area of knowledge a person should learn has to be marked out in view of the practical impossibility of an individual mastering all available knowledge.

DATA, INFORMATION, KNOWLEDGE, WISDOM

The concept of transforming Data, to Information, to Knowledge, to Wisdom has been utilized in education, numerous studies and by industries. There is a subtle difference between data and information: Data are the facts or details from which information is derived. Individual pieces of data are rarely useful alone. For data to become information is derived. Individual pieces of data are rarely useful alone. For data to become information, data needs to be put into context.

DATA

1. information, often in the form of facts or figures obtained from experiments or surveys, used as a basis for making calculations or drawing conclusions
2. information, for example, numbers, text, images, and sounds, in a form that is suitable for storage in or processing by a computer

INFORMATION

1. definite knowledge acquired or supplied about something or somebody
2. the collected facts and data about a particular subject
3. a telephone service that supplies telephone numbers to the public on request.
4. the communication of facts and knowledge

5. computer data that has been organized and presented in a systematic fashion to clarify the underlying meaning
6. a formal accusation of a crime brought by a prosecutor, as opposed to an indictment brought by a grand jury

KNOWLEDGE

1. general awareness or possession of information, facts, ideas, truths, or principles
2. clear awareness or explicit information, for example, of a situation or fact
3. all the information, facts, truths, and principles learned throughout time
4. familiarity or understanding gained through experience or study

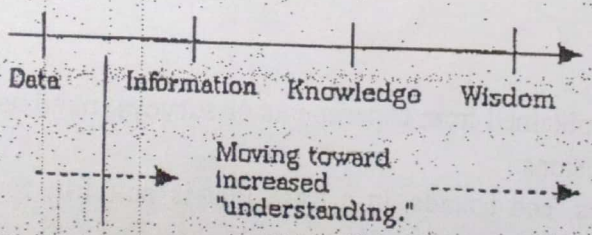
WISDOM

1. the knowledge and experience needed to make sensible decisions and judgments, or the good sense shown by the decisions and judgments made
2. accumulated knowledge of life or in a particular sphere of activity that has been gained through experience
3. an opinion that almost everyone seems to share or express
4. ancient teachings or sayings

Various people have thought carefully about varying definitions of these four terms and produced their own analysis of the four terms. The following is quoted from Jacques Steyn's Website:

Information consists of data, but data is not necessarily information. Also, wisdom is knowledge, which in turn is information, which in turn is data, but, for example, knowledge is not necessarily wisdom. So wisdom is a subset of knowledge, which is a subset of information, which is a subset of data.

The terms Data, Information, Knowledge, and Wisdom are sometimes presented in a form that suggests a scale.



However, in no sense do these four terms define some sort of linear equal-interval scale. They do, however, help us to discuss the design of an educational system as well as current and potential uses of computers. For example, we all accept that computers can be used for the input, storage,

processing, and output of data. But, there is considerable disagreement about whether a computer can have knowledge or be knowledgeable--or have wisdom and be wise.

Educational Implications

It appears that one of the issues in defining the terms data, information, knowledge, and wisdom is the role of understanding and meaning making. One can memorize data, and parrot it back. One processes data to produce information. Parroting such chunks sounds more like being educated--but this can be done with little understanding or ability to make use of the information. Knowledge is a step further on the scale. It involves understanding and ability to make use of the data and information to answer questions, solve problems, and make decisions, and so on. Wisdom has to do with using one's knowledge in a responsible (wise) manner.

When schools teach for wisdom, they teach students that it is important not just what you know, but how you use what you know--whether you use it for good ends or bad.

KNOWLEDGE AND WISDOM

"Where is the wisdom we have lost in knowledge? Where is the knowledge we have lost in information?" —T.S. Eliot.

Knowledge is gathered from learning and education, while most say that Wisdom is gathered from day-to-day experiences and is a state of being wise. Knowledge is merely having clarity of facts and truths, while wisdom is the practical ability to make consistently good decisions in life.

Wisdom and Knowledge, both recurring themes in education, related but not synonymous. The dictionary defines wisdom as "the ability to discern or judge what is true, or lasting. "knowledge, on the other hand, is "information gained through experience, reasoning or acquaintance. "knowledge, can exist without wisdom, but not the other way around. One can be knowledgeable without being wise. Knowledge is knowing how to use a gun, wisdom is knowing when to use it and when to keep if holstered.

Knowledge comes from learning and Wisdom comes from living.

MEANING OF KNOWLEDGE

Knowledge means Facts, information, and skills acquired through experience or education; the theoretical or practical understanding of a subject: a thirst for knowledge her considerable knowledge of antiques. Knowledge is a familiarity, awareness or understanding of someone or something, such as facts, information, descriptions, or skills, which is acquired through experience or education by perceiving, discovering, or learning.

Knowledge can refer to a theoretical or practical understanding of a subject. It can be implicit (as with practical skill or expertise) or explicit (as with the theoretical understanding of a subject); it can be more or less formal or systematic.[1] In philosophy, the study of knowledge is called

epistemology; the philosopher Plato famously defined knowledge as "justified true belief", though "well-justified true belief" is more complete as it accounts for the Gettier problems. However, several definitions of knowledge and theories to explain it exist.

Knowledge is information of which someone is aware. It is also used to mean the confident, understanding of a subject, potentially with the ability to use it for a specific purpose.

Knowledge is knowing or understanding something especially about a particular subject. Knowledge is something that a can be known, information.

Knowledge acquisition involves complex cognitive processes: perception, communication, and reasoning; while knowledge is also said to be related to the capacity of acknowledgment in human beings.

"Epistemology" is the study of knowledge and how it is acquired. Science is "the process used every day to logically complete thoughts through inference of facts determined by calculated experiments."

CONCEPT OF KNOWLEDGE

Knowledge is gained through learning facts. Someone who knows a lot about a certain subject, such as science or history, can be considered knowledgeable. Information found online or in books can help someone expand her knowledge on a topic.

- Knowing or understanding something, especially about a particular subject.
- Having awareness of facts and/or truths.
- Something that can be known, information.

DEFINTION OF KNOWLEDGE

Sir Francis Bacon, "Knowledge is Power"

Knowledge with Skills, Information

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MEANING OF WISDOM

Wisdom is the ability to make correct judgement and decisions. It is an intangible quality gained through our experiences in life. Wisdom is the state of being wise (i.e) capable of

determining what is wise Vs what is unwise. Wisdom is the ability to use knowledge and experience intelligently.

Wisdom comes from observing experiences and learning from them in a way that affects future decisions and behavior; it is the capacity to see the truth of a matter, in spite of any illusions or distractions. For example, someone might spend beyond his means and end up in unnecessary debt, but if he is wise this will only ever happen to him once, as he will have learned from his mistake; in the future, he will save his money before he spends it carelessly. An even wiser person might avoid such a mistake altogether by listening to the wisdom of others or by wisely choosing to seek information (knowledge) on how to properly manage finances.

CONCEPT OF WISDOM

- The state of being wise
- The ability to use knowledge and/or experience intelligently
- Capable of determining what is wise vs. what is unwise
- A saying, philosophy, or other advice that is considered wise

DIFFERENCE BETWEEN KNOWLEDGE AND WISDOM

AREA	KNOWLEDGE	WISDOM
Meaning	Knowledge is information of which someone is aware. Knowledge is also used to mean the confident understanding of a subject, potentially with the ability to use it for a specific purpose.	Wisdom is the ability to make correct judgments and decisions. It is an intangible quality gained through our experiences in life.
Time	Allows for change in response to new information or analyses. Seeks to always improve.	Timeless. Wisdom is "Who we are" vs. "What we do" Wisdom governs choice, pursuit of knowledge, communication and relationships.
Source	Learning, education, science, reflection, reasoned and logical thought.	Self. Intuition. Our personal experience. Wisdom defines and refines our character. "Character is simply who we are and is the persona and identity of everything we do."

Correlation between Knowledge and ~~Curriculum~~ Wisdom

Wisdom and knowledge are linked. Wisdom is enhanced by knowledge and the ability to acquire knowledge effectively. But wisdom is also the ability to use knowledge in a practical and productive manner. Knowledge is often considered to be "externally generated," meaning that it comes primarily from outside sources, such as books, classroom lectures, videos, etc. On the other hand, wisdom is deemed to come primarily from "internal sources," meaning one's own introspective thinking, analysis, and judgment. Wisdom cannot be acquired and applied without knowledge, but knowledge isn't necessarily guided or enhanced by wisdom.

Applying Knowledge and Wisdom

The application of knowledge is often a matter of finding or knowing the right facts, meaning that there is a distinct difference between the "right" and "wrong". facts. In contrast, wisdom often requires much more than facts to perceive and choose the "right" action or to avoid the "wrong" action. The factors involved may include speculation, feelings, and moral or ethical values. In this general sense, applying knowledge tends to be a much simpler process.

An example of applying knowledge can be found in the development of nuclear bombs, which were the end result of thousands or perhaps millions of steps. Following this development, the decision to drop atomic bombs on Hiroshima and Nagasaki is sometimes understood as being wise, under the notion that these acts shortened World War II and thus saved thousands or even millions of lives. In terms of knowledge, the end result (the atom bomb being made) is obvious, but in terms of whether applying that knowledge was wise or not is still unclear and subject to intense debate.

KNOWLEDGE WITH SKILL

Skill - the ability to do something that comes from training, experience, or practice

Knowledge - awareness of something : the state of being aware of something

In connection with teaching knowledge transfer means a simple transfer of information like reading a book, delivering lectures, etc.

In the case of skill, need to make sure that the student practices with proper mental and physical attitudes.

Both require specific skill on the part of the skill, while for knowledge information delivery becomes important where as for skill it is the individual person skills become far more important.

To teach skills you need to foster a disposition to want to use the skill. Students need encouragement to be the possessors of a skill. However, to teach facts you don't necessarily need to teach the associated disposition to be appraised of those facts.

"A skill is being able to do something whereas knowledge is knowing about or understanding something."

Humans' knowledge can be defined as a complex product of learning process which is partly theoretical and practical. Theoretical knowledge means to own concepts, definitions, rules, principles and theories while practical (operative) knowledge includes abilities, skills as well as rutines and habits.

MEANING OF CURRICULUM

The term curriculum has been derived from Latin Word "currere" which means a "race course" or a runway on which one runs to reach a good. According to curriculum is the instructional and the educative program by following which the pupils achieve their goals, ideals and aspirations of life.

As the process of education goes on expanding, its scope also gets increased. Rapid expansion of knowledge, increasing student population, radical changes resulted in many of the educational concepts due to the application of innovative research studies etc. have joined together to provide new interpretations to the term "Curriculum".

Thus curriculum is to be constructed as a dynamic entity that goes on changing with time.

It is curriculum through which the general aims of a school education receive concrete expression.

Traditional concept:

The traditional curriculum was subject centered while the modern curriculum is child and life-centered..

What is Curriculum?

- A plan for learning.
- The experience of the learner.
- A system for dealing with people and the process.
- A field of study.
- Subject-matter or contents.
- Curriculum is a dynamic, ever changing series of planned learning experiences.

Curriculum as

- a document describing content, aims and the learning situation.
- a system which deals with content of human action and curriculum decisions.
- An area of activity.

CONCEPT OF CURRICULUM

There is multiplicity of concepts of curriculum since educationists give their own different interpretations of the content and functions of curriculum. In this area, three different thinkers, which represent three major contributions to the body of knowledge on curriculum, have been discussed. They throw light on the scope of 'curriculum' and the diversity of curriculum problem.

The first concept, en enunciated by Albert Oliver, refers to curriculum merely as 'the educational program' consisting of three important elements, such as studies, activities and guidance.

The second concept, described by Phillip Phenix is based on a carefully thought out scheme of values, which constitute the aims and objectives or purpose of education.

The third concept, given by Hilda Taba, looks at curriculum as the function of the public school; she lists the three functions as preserving and transmitting of cultural heritage, serving as an instrument for transformation of culture, and working as a means for individual development.

The curriculum is the heart of schooling, the education process. All resources available at school e.g: the school building, equipment, various varieties of instructional materials including books in the library exist for just one purpose for supporting effective implementation of the curriculum. The entire set of classroom actives the co-curricular programme as well as the entire evaluation schedule follows from the school curriculum.

The word "Curriculum" has been used in many ways. It usually stands for:

- A school's written courses of study and other curriculum materials;
- The subject content taught to the students;
- The course offered in a school; and
- The totality of planned learning experiences offered to students in a school.

Modern concept of curriculum:

Modern education is the combination of two dynamic processes. The one is the process of individual development and the other is the process of socialization, which is commonly known as adjustment with the social environment.

DEFINTION OF CURRICULUM

The term "Curriculum" has been defined by the scholars and educationists. Some of the definitions have been given below sto understand the nature and characteristics of curriculum.

According to Tyler, "A Curriculum can be defined as a plan for action or a written document that includes strategies for achieving desired goals or ends".

Curriculum is an organized set of formal education and/or training intentions_ pratt.

"Curriculum is a tool in the hands of the artist (teacher) to mold his material (pupils) according to his ideas (aims and objectives) in his studio (school).

Morroe _ "Curriculum includes all those activities which are utilized by the school to attain the aims of education...."

Crow and Crow _ "The curriculum includes all the learners experiences in or out side school thatare included in a program which hasbeen devised tohelp him developmentally emotionally, socially, spiritually, and Morality".

T.P.Nun _ " The curriculum should be viewed on various forms of activities that grand expressions of human spirit and that are of the greatest or most permanent significance to the wide world".

- A plan for learning (Taba,tyler).
- The experiences of the learner (Camphell).
- A system for dealing with people and the processes (Giles).
- A field of study (Hunkins).
- Subject-matter or contents (Orenstein).

Simply, curriculum refers to all learning experiences planned by the teacher for his students inside and outside the classroom.

NEED AND IMPORTANCE OF CURRICULUM

The curriculum includes the totality of experiences which are planned for children and young people through their education, wherever they are being educated. Curriculum for excellence aims to achieve a transformation, and it is meant.

- To provide knowledge which exist due to diversity of knowledge explosion.
- Existence of living creature, to understand the phenomena/facts to lead life. (curriculum and life is inseparable).
- Life goes on changing, our curriculum should not be static.
- Curriculum changes according to the needs of the society at the dynamic of subject matter.
- Curriculum which is properly organized enhance student teaching and learning.
- Determines the actual boundaries of the knowledge need to be imparted through educational units.
- Cultural reproduction/transmission can be made through curriculum.
- Curriculum is serving the society. It has potentials of generating the future society.
- Educate equally all citizens.
- To create productive society.
- To be self sufficient enough.
- To manage source of energy, conservation and re-generation.
- To make wise choice and decision.

- It helps in development and democratic values.
- It helps in development and good citizenship.
- It helps in development of character.
- It helps in development of interest- skill, abilities , attitude , aptitude and requirements of students.
- It helps in development of criteria for teacher.
- It helps in development of selection of methods-teaching-how to teach-what to teach etc.

CHARACTERISTICS OF CURRICULUM

- Curriculum is a tool in the hands of the teacher which used to realize the objectives.
- It is pivot, around it whole human knowledge concentrates.
- It includes those activities which are used by the school to attain the purpose of education.
- The curriculum is made up of everything that surrounds the learner in all his working terms.
- It has been described as the environment in motion (physical, social and psychological)
- Curriculum includes total learning experience that a child receives at a school.
- All the learning inside or outside the school which is planned and guided by the teacher.
- The curriculum is continuously evolving.
- The curriculum is based on the needs of the people.
- The curriculum is democratically conceived.
- The curriculum is the result of a long-term effort.
- The curriculum is a complex of details.
- The curriculum provides for the logical sequence of subject matter.
- The curriculum complements and cooperates with other programmer of the community.
- The curriculum has educational quality.
- The curriculum has administrative flexibility.

DOMAINS OF THE CURRICULUM

Curricular domains are the typical "subject" or developmental learning addressed from the early learning years through school age. The domains are interrelated. For example, a language activity may also impact learning in the area of social skills. The typical domain areas include:

- Language and Literacy
- Math
- Personal and Social
- Physical Development
- Science
- Social Studies
- Fine Arts: dance, music, visual

EPISTEMOLOGICAL BASIS OF CURRICULUM

Epistemology : It concerned with the theory of knowledge, especially with regard to its methods, validity, and scope, and the distinction between justified belief and opinion.

It means that Study of the grounds, nature, and origins of knowledge and the limits of human understanding. It deals with issues such as how knowledge is derived and how it should be tested and validated.

Therefore Epistemology is the study of knowing. It deals with the nature of knowledge, how do we know things, what do we know, why we know, is what we know true, and what are the limits of knowledge.

Therefore, Epistemology, it is also a branch of philosophy that deals with the origin, nature, and limitations of know e ge, has fuelled debate in education for years. The argument over academic versus utilitarian curriculum.

Epistemology highlight how various epistemological aspects have been applied in the curriculum development and implementation processes at the different (School/college/University) level.

Epistemology of the Curriculum means it should demonstrate certain amount of connection with all things that exist. It questions what knowledge is an ow i can acquired, an the extent to which knowledge pertinent to any given subject or entity can be acquired.

- Epistemology is the study of knowing.
- Epistemology of the Curriculum means it should demonstrate certain amount of connection with all things that exist. Curriculum contents exist in order to transmit knowledge and to lay a foundation to facilitate knowing or meaning construction.
- As different professional curriculum programs aim at providing different traits in learners, it is important that educators attempt to study and know the types of knowledge and knowing that may lead to the development of the needed traits;
- Educators need to evaluate their curricula in order to ascertain whether their design and implementation have provisions to make learners acquire knowledge and knowing.

FORMS OF KNOWLEDGE

Knowledge is what is perceived to be reality or truth. Nickols (2000a) argues that knowledge is a mix of framed experiences, values, contextual information, and expert insight. The notion of knowledge can be objective, observable and communicable to one individual and likewise knowledge can be subjective, unique, and internal to another individual. Knowledge as being explicit, implicit, tacit, procedural, declarative, strategic, conceptual, logical-mathematical, physical, automatized, semantic and social. The term knowledge has various uses depending on the perspective in which it is used. From this perspective, when discussing knowledge, it should be done in context.

Epistemological aspects of curriculum, development and implementation.

There is no absolute truth. This paradigm emphasises that knowledge should be looked at in a democratic manner. Current reality should be subjected to constant challenge.

Explicit knowledge is formal, systematic and codified usually digitized in form of documents such as books, and reports. Thus, it is articulated in form of text that may contain specifications and scientific formulas. In laboratory practice like in other areas of practice, explicit knowledge is the most commonly used knowledge. It is used in routine teaching and learning.

Implicit knowledge is reflected in observable behaviour or even in performance of tasks. It can be teased out from the individual's performance by experts using task analysis.

Tacit knowledge refers to the knowledge that people have but is. not, written down. It is thus difficult to articulate and tends to be shared through interactions, storytelling and discussions with individuals having this knowledge and expertise. Tacit knowledge is acquired as a result of individuals' experience and some individuals may not even be aware that they have this knowledge. The utility of tacit knowledge is not as broad as that of explicit knowledge.

Procedural knowledge refers to understanding of how to carryout procedures normally based on implicit memory or long-term memory of specific skills and procedures. *It denotes knowledge of how to complete tasks.*

Declarative knowledge like procedural knowledge, declarative knowledge, refers to the ability to describe, interpret and explain how to perform certain tasks (Nickols, 2000a). Declarative knowledge helps learners to develop procedural knowledge. It is easy to validate, identify, transfer, and slow to acquire as it requires interpretation of its acquisition process.

Strategic knowledge is the ability to perceive the right time and the right reason for doing things (Nickols, 2000b). It is used by Laboratory managers in their routine day-to-day activities as well as in planning. In clinical laboratories, strategic knowledge is used when making decisions. It helps laboratory professionals in identifying which operations are of emergency nature and those that are routine.

Conceptual knowledge refers to the manner in which one represents major concepts in a system. It explains relationships and understandings of a system. Conceptual knowledge involves making sensory observations, logical correlation of data, abstractions, assimilations, problem-solving, reasonable judgement and understanding of humans.

Physical knowledge refers to ability to demonstrate a clear understanding of the physical properties of objects or events. Lovat (2004) argues that physical knowledge is a good under-standing of facts and features such as size, shape, texture, weight, volume, and dimensions.

Practical-technical knowledge refers to what people know and can do. It includes the understanding of the structure of work activities in organizations. It is the knowledge that individual use when deciding to take some action basing on their beliefs and values.

Social knowledge involves the enhancement of cultural or social groups to come to agree by convention. It is based on the belief that knowledge can be acquired through social interaction especially when people engage into dialogue, conversation, copying, practicing, having feelings and establishing connections and relationships with others.

MEANING OF CURRICULUM ORGANISATION

Process of selecting curriculum elements from the subject, the current social life and the students experience then designing the selected curriculum elements appropriately so thy they can can from the curriculum structure and type.

AIMS OF CURRICULUM ORGANISATION

A well-designed curriculum is organized to achieve its aims. It:

a) Helps every learner to make progress, building on their experiences both within and outside of school.
b) Is based on a clear and shared understanding of how learners learn.
c) Recognizes the dynamic interplay between content, pedagogy and assessment.
d) Provides a coherent and relevant set of learning experiences, both in and out of lesson time.
e) Provides for the full range of capabilities and aspirations.
f) Uses expertise from outside the teaching staff to enrich learning.
g) Uses time flexibly to meet learning needs.
h) Provides opportunities for learners to experience the benefits of different learning approaches, including learning through subject disciplines, thematic approaches, areas of study of their own choice and problem identification.
i) Provides opportunities for learners to learn on their own, in a team, in a large group and with virtual collaborators.
j) Provides opportunities for learners to learn in a range of places and to benefit from resources in the local community.
k) Includes global, national, local and personal dimensions.
l) Reflects and makes use of current technology.
m) Meets statutory requirements.

Criteria for effective curriculum organization

1. Continuity
2. Sequence
3. Integration

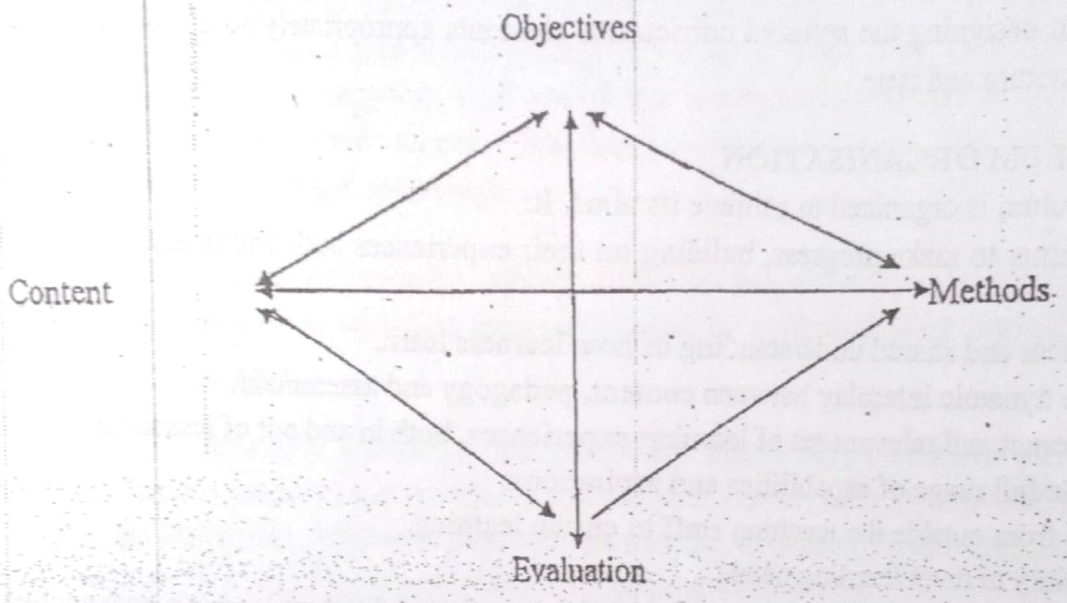
STRUCTURE OF CURRICULUM

Curriculum consists of five dimensions or components. They are considered to be the major elements of a curriculum. They are:

*The learner and the society

*Aims and objectives
*Content or subject-matter
*Teacher methodology
*Evaluation

The five components are inter-dependent. The structure of the curriculum is compared to the system of the human body such as muscular, respiratory, and circulatory, nervous, etc. Any alteration in one system affects the structure and functioning of the others. The structure of the curriculum is as follows.



The learner and the society

The curriculum is concerned with the learner and the society in which he or she lives. The curriculum puts emphasis on both individual and the society needs.

Aims and objectives

Aims and objectives are statements that reflect the needs of the learner and society. They serve as a basis for selection of subject- matter and student experiences.

Content or subject- matter

Contents or subject- matter are facts, concepts or principles for developing knowledge, skills and values among the learners. Contents are organised to achieve the aims and objectives and the learner's requirements and the demands of the society. Subject- matter is usually presented through text- books and other learning experience.

Teacher methodology

It refers to the techniques and methods chosen by the teacher to present the subject-matter. Teacher methodology results in learning outcomes. Students acquire knowledge, skills or attitudes through teacher methodology.

Evaluation

Evaluation measures learning outcomes of the learner in the terms of the proposed objectives. Evaluation provides information on student's learning. It helps the teacher for taking up next instructional activities.

TYPES OF CURRICULUM

1) Subject Centred Curriculum.
2) Student Centred Curriculum.
3) Fused (or) Integrated Curriculum.
4) Correlated Curriculum.
5) Core Curriculum.

SUBJECT-CENTRED CURRICULUM

The subject-centred curriculum organisation is traditional, and most schools organise their work near this pole on the continuum.

What is a subject? A particular stream of knowledge, otherwise known as subject discipline is shortly referred as 'subject'. The amount of knowledge in the world, relative to man's ability to handle it, has been tremendous. This knowledge being enormous, has been classified into bodies or branches called 'subjects'. The subjects that are presented in the school are few, but these subjects are found to be fundamental to the learner, and help him with a basis to proceed further.

Assumptions of Subject-centred Curriculum

1. The acceptance of Jerome Bruner's contention that the child's cognitive functioning is essentially the same as the adult scholar differing chiefly in a matter of degree.
2. The belief that disciplines organised according to their structure would allow for the accommodation of the explosion of knowledge
3. The belief that the major role of the schools is to transmit the cultural heritage from generation to generation.
4. The belief that most significant parts of this cultural heritage can be grouped into 'subject-disciplines'.
5. The assumption that each subject has an internal order which can be presented in sequence from simple to complex. [Eg. After learning addition and subtraction in arithmetic, one may proceed to multiplication and division.]
6. The assumption that this subject-centred organisation of curriculum will enable the student to develop the capacity to deal with the problems as he meets them.
7. The belief that the teacher-dominant teaching methods are superior to other methods adopting a democratic approach.

8. The belief that this pattern of curriculum organisation has stood the test of time and hence has a merit.
9. The belief that subject-centered curriculum organisation provides security for the teacher, learner, and the parent because of its time-honoured status.

Important Features of Subject-centred Curriculum

Objectives: The objectives in a subject-centred curriculum are stated as 'expected learning outcomes' expressed in behavioral terms. Objectives serve as the basis for content selection in the curriculum process. Drill and memorisation are emphasised to learn and remember the content.

Contents: The contents for different subjects in the curriculum are selected by a committee of experts and teachers and presented in well organised lessons. They usually contain facts, concepts, generalised principles, established processes and skills in the subject area. As the contents are well established truths, they are universally applicable.

Structure: Each subject is in its own 'compartment', with little genuine concern for things outside its walls. University scholars often talk about (and even attend) 'interdisciplinary' meetings but. although, they may be willing to peep through windows in their walls. they seem seldom to conceive to breaking the walls down.

Instructional Materials: Text-books prepared by experts in accordance with the syllabus, serve as the commonly used learning materials. Generally students prefer to follow the same text books which their teachers use.

Learning Activities: Learning activities are mostly verbal involving listening, reading, writing and reciting.

Grouping: Generally teachers provide instruction in the class or large gathering.

Time and space: Time spent in the classroom is considered highly valuable. Instructional time is divided into units of 45 or 60 minutes called 'periods' and every subject is allotted specific periods in the instructional time-table.

Teacher Methods: Teacher is considered as an expert in the subject. Contents are presented through teacher-centred methods like lecture, discussion and demonstration.

Evaluation: Evaluation is periodically attempted to assess students' mastery of the subject-content (academic achievement) through oral and verbal tests. Marks / grades are allotted to indicate the proficiency achieved.

Criticisms Against Subject-centred Curriculum

1. The constant accumulation of knowledge and the increasing tendency of schools to add more subjects to the curriculum, have resulted in eroding the confidence of the teacher in his ability to handle the newly added contents / subjects. Further, to give attention to these different areas of study

newly added in the curriculum, it becomes necessary to chop up the school day into short unrelated blocks of time.

2. As efforts are taken to increase the number of pupils attending the school, among the children of school-going age, the problems of individual differences have been accentuated. These differences make it untenable to have a common curriculum for all.

3. A basic tenet of the subject-centred approach is that learning the information presented will eventually transfer to life situations,. Psychologists raise serious doubts upon the likelihood of such automatic transfer, especially when knowledge is broken up into discrete parts.

Subject emphasis fails to take into consideration the needs and interests of the learners, and, as psychology has shown, interest affects learning.

Overconcern with the cultural heritage leads to the neglect of current social activities and problems. This may lead to educated people functioning with no social awareness and responsibility.

6. Concern with structure of disciplines tends to fragment the curriculum rather than integrate learning.

7. The prevailing methodology and the nature of the learning material, foster rote memorization rather than a process of critical 'thinking'.

VARIATIONS IN SUBJECT-CENTRED CURRICULUM

The subject-centred curriculum puts emphasis on the subject-matter. The subject-matter can be designed in several ways, chief among them are:

i) Separate-subjects curriculum

ii) Correlated curriculum

iii) Broad-field curriculum / Integrated curriculum / Fused curriculum

iv) Core curriculum

SEPARATE-SUBJECTS CURRICULUM (Tamil)

When separate subjects are studied, their boundaries are distinct and clear. Each subject is treated as a discrete or independent area of the curriculum.

For example, geography, history and economics are separate subjects in the social science curriculum.

Geology, biology, physics and chemistry are offered as separate subjects in the science curriculum. Separate subjects make no attempt to inter—relate among school subjects.

CORRELATED CURRICULUM (Tamil)

Correlated curriculum attempts to relate the various school subjects, by dwelling the concepts learnt in one field to build and reinforce those in other fields. 'Basic Education' and 'Project Method' give importance to correlated Curriculum.

Examples:

i) When 'calculus' is learned in mathematics, during the same year if topics like 'Moment of Inertia', 'Centre of gravity', 'Magnetic field intensity', 'Electric Current flow and its intensity' etc. in physics are taught, it becomes easy for students to learn these concepts with proper understanding.

ii) Celebration of Sankaranthi (Pongal festival in Tamilnadu) can be correlated with harvest festivals all over the world, the transit of the sun, change in seasons, impact on agricultural prices etc.

iii) Gardening gives opportunities to learn about various types of soil, earthworms, seed selection, planting, observing plant growth, use of manure, watering, plant-protection, harvesting, storing, marketing etc. in a 'scientific' manner.

Correlated curriculum facilitates students acquiring greater degree of unity in their knowledge.

THE 'INTEGRATED' OR 'FUSED' OR BOARD FIELD CURRICULUM (Tamil)

The 'Integrated' or 'FOsed' curriculum (also known as 'Broad fields) occupies the mid-position on the continuum formed with 'subject-centred' and 'student-centred' curricula as its two poles. Subjects and students, are taken as the two sources of the curriculum and the major focus of this pattern of curriculum organisation is the linking of these two sources. The basic consideration here is of ways to bring into a broad organisation those subject-matter elements which have certain inherent relationship. The form that emerges depends upon what is used as the basis for unification.

Types of Fusion

Two types of fusion can be attempted.

- Several courses, formerly separate, have been merged into one, such that boundaries between individual subjects become invisible.

Examples

I) Biology is the result of the fusion of botany, zoology, anatomy and bacteriology

ii) Mathematics is the fusion of arithmetic, algebra geometry and trigonometry

iii) Social studies is the fusion of history, geography and civics.

Instead of blending the subjects, some unifying ideas such as principles and generalisations could be used for fusion For example 'The Progress of Democracy', 'The Growing Interdependence of nations', 'Environmental Pollution' etc could serve as the general principles to integrate content elements from different subjects. For example under the general principle 'Environmental Pollution' the following content elements from chemistry, Physics, Geography and Biology could be integrated.

i) Air polluting chemical substances and their source! (Chemistry)

ii) Thermal and nuclear power generating stations producing air pollution by causing increased suspended particulate matter (SPM) and hazardous radiations (Physics)

iii) Air pollution caused by natural sources like volcanic eruptions. deflation of sand and dust, forest wild fires etc. (Geography)

iv) Decomposition of biological wastes from vegetation; and living organisms (Biology)

Values of Fusion of Subjects

- It fosters actual fusion of closely related subject contents so that pupils get whole and complete knowledge.
- Bringing out the 'ties' among subjects make student! learning more meaningful.
- In integrated curriculum, as central ideas are discovered while learning, pupils retain them for long. It is far superior to learning 'chopped up facts' in different subject following the disciplinary approach in curriculum organisation and forget them soon as they are lacking in apparent ties.
- By having several related subjects blended in the curriculum, the student gets a better picture of the scope of man's knowledge and some corrtmon principles as well as the unique features of each discipline.

Weakness in Fusion

- The compressing of several subjects into a broadfield, does not necessarily bring about real integration.
- In fused curriculum students get sketchy knowledge only; students do not develop indepth knowledge as the unique features of respective subjects are watered down and the rigour of discipline is lost.
- The presentation of generaFif,ations, by-passing the details, complicate pupils' learning by making it more abstract.
- Programmes that centre around life themes too tend to be artificial in that choices are adult determined and at best arbitrary compartments and can not match true life situations related to the present day youths.

CORE CURRICULUM

The Core Curriculum was introduced with rather ambitious aims. This type of curriculum was supposed to develop integration, to serve the needs of students and to promote active learning and significant relationship between life and learning. In this sense it was an epitome of all preceding designs.

Core curriculum refers to the essential or common learning experiences provided compulsorily to all the students along with other general subjects, no matter whether a student learns science or history, but core curricular components are compulsory to all the students.

Core relies more on structuring. The plan is to develop unified studies based upon the common needs of the learners and organised without restriction by subject matter. The key words are (i) 'unified', (ii) 'common needs' and (iii) 'without restrictions'.

Today India faces several problems such as population growth, environmental pollution, erosion of cultural heritage and national integration. To make the students understand and solve problems, the New Education Policy (NEP, 1986) has suggested ten core curricular components for students from I to X standards. They are:

1. History of India's freedom movement
2. Constitutional obligations
3. Contents essential to promote national identity
4. India's common cultural heritage
5. Equalitarianism, democracy and secularism
6. Equality of sexes
7. Protection of environment
8. Removal of social barriers
9. Observance of the small-family norm
10. Inculcation of scientific temper.

At the secondary level, where the term is most often used, it should be noted that core does not comprise the entire school day, only that part devoted to general education. The general education proportion decreases throughout the high school years; thus, the core occupies less of the student's time as he progresses towards graduation.

In the part of the day meant for general education, at first there is the core period in which problems of common concern are studied. In the second part of the day, there are physical education, club activities all valuable for pupils regardless of their special needs and plans. However, there is a close correlation between the core periods and the activity periods. This plan presents many opportunities to the subject-specialists (subject-matter experts) and core teachers (experts in activities and student understanding) to work together and facilitate the integration of learning.

It is suggested that attention be focussed more on core as a concept than as an administrative arrangement. The contention here is that the essence of the curriculum lies in the concepts behind the core idea which should be incorporated into the teaching-learning situation.

Assumptions of Core-Curriculum

The core curriculum is based on the following assumptions:

1. Interests, concerns and needs expressed provide pupils a valid basis for curriculum content and are central to the learning process.
2. Learning involves changes in behaviour which are brought about through experiences.
3. A democratic society values the worth and dignity of the individual.
4. A democratic society requires citizens who are skilled in the decision-making process.
5. Higher priority must be given to the development of learning skills and the clarification of values, rather than to the acquisition of specific information in the subject-matter areas.
6. Learning is experiences are enhanced when the learner is encouraged and helped to draw upon all appropriate sources of information.
7. The extent and nature of classroom activity should determine the allocation of time.
8. The teacher's primary role should be that of an advisor, a facilitator, a friend and a fellow learner.
9. Teaching and many aspects of guidance are complimentary function of the teacher.
10. To bring about continuous improvement in learning, all concerned parties should be involved in evaluation

STUDENT-CENTRED CURRICULUM (Tamil)

The most serious objection to the subject-centred curriculum is that organisation of knowledge into 'subjects' tend to set up barriers to the understanding of relationships and inter-relationships. A major reaction to the subject-centred curriculum was to swing to the other extreme of centering the programme on students rather than on subjects. In its extreme form, this idea held that education is life, and since life is changing, there could be no fixed curriculum. Under this interpretation curriculum organisation was easy because the curriculum is to be built (i.e. learning experiences are to be set) upon what the pupils are interested in and ensure the development of the whole personality of the child.

As Nisbet says, the learner-centred curriculum puts emphasis on the maximum growth of the pupils. The concerns of the children are the basis for organising the children's school programme. With emotional involvement of the pupil in learning, the whole learning process would become more vivid and valuable.

The student centred programme meets the criticisms against subject organisation. It is related to pupil interest, learners are active, activity is built around psychological problems rather than logical topics, the programme is flexible rather than rigid, democratic, rather than authoritarian and it cuts across subject lines. But in actual practice, the vagaries of the immature minds of pupils brings up

an erratic curriculum, too inexact for educational security. This plan might be characterised as 'unstructured', whereas in curriculum organisation there must be planning and structure.

In Kelly's (1977) views, a child-centred education should take into account (i) the needs of the learner (ii) growth of the learner and (iii) interests of the learner.

John Dewey, the American educationist advocated child-centred education characterised by (i) providing meaningful learning experiences by allowing children to interact with the environment. (ii) educating children according to their stages of growth and development. (iii) teaching to suit the interests and abilities of children and (iv) providing adequate opportunities for children to socialise, inquire and experiment, construct and innovate.

Important Features of Student-centred Curriculum

i)**Structure:** Student-centred curriculum cares more for the individual learners and development of their potentials. Importance is given for the inculcation of original thinking, practical skills and free expression of one's own ideas. Learning experiences are planned to promote personality development.

ii)**Objectives:** In student-centred curriculum objectives are not planned in advance. They are formulated on the basis of the needs of students, their interest and developmental stage and as such they are highly flexible.

iii)**Contents:** Contents are selected based on student's needs, ability to learn, age, aptitude and previous experiences. Lessons are written using words familiar to the students. Rote learning is not encouraged; direct experiences are insisted to facilitate original thinking.

iv)**Teaching and Learning:** Time allotted for teaching gets reduced, as more time is allowed for self-learning. There is active interaction between the teacher and students which creates a good learning environment. Audio-visual materials and practical demonstrations are increasingly used in the classroom instruction. Students are encouraged to undertake projects, prepare assignments and learn by self-efforts.

v)**Grouping of Learners :** Students are organised into several learning groups based on their achievement in the subject and interests exhibited. One of the members of the group direct the activities. Students learn through group activities. Formation of groups will vary for different subjects.

vi)**Time Schedule and Space:** Time-table is flexible and is unlike that followed in subject-centred curriculum. Time is allotted depending upon the nature and difficulty level of the lesson. Learning may take place in different places like laboratory, library, workshop, gymnasium etc. in addition to the classroom. Whenever necessary, field trips and educational tours are organised. Such flexibility is not possible in a subject-centred curriculum.

vii)**Role of the Teacher:** In student-centred curriculum teacher is mainly a facilitator. The social distance between the teacher and students will decrease. Teacher will not hesitate to accept student's ideas.

viii) **Evaluation:** Apart from teacher's evaluation of students, there is provision for self-evaluation by the students themselves. Students are assessed for how they learn and not merely by what they have learnt and this approach encourages students to improve their learning techniques.

Limitations of Student-centred Curriculum

- Students at secondary level are not mature enough to know their future needs. Further, they may also exaggerate their abilities. A curriculum based on students' present needs and interests may not meet their future needs.
- There is a danger that essential contents to be learnt and values requiring training may not find a place in student-centred curriculum.
- The aspirations and needs of students may widely vary and as such developing and implementing student-centred curriculum is very difficult.
- As the contents for a student-centred curriculum are organised on psychological basis and not in a logical sequence, they may lack continuity.
- In subject-centred curriculum instructional materials and aids which are available in the market could be used; but in student-centred curriculum the subject teacher himself has to prepare them.
- Teachers adopting student-centred curriculum need to have wider scholarship and better resourcefulness

MEANING OF CURRICULUM FRAME WORK

A Curriculum Frame Work is an organised plan or set of standards or learning outcomes that defines the content to be learned in terms of clear, definable standards of what the student should know and be able to do.

CONCEPT OF CURRICULUM FRAME WORK

A curriculum framework is part of an outcome-based education or standards based education reform design. The framework is the first step, defining clear, high standards which will be achieved by all students. The curriculum is then aligned to the standards, and students are assessed against the standards. As compared with traditional education which is concerned only about delivering content, a standards based education reform system promises that all will succeed if all are held to high expectations. When the standards are reached, there will be no achievement gap where some groups are allowed to score lower than others, or the disabled are offered different opportunities than others. All will meet world class standards and be qualified for good colleges and trained for good jobs which pay good wages. In a traditional education system, the curriculum was defined by those who created textbooks rather than government bodies which assembled groups of stakeholders to create standards based on consensus of what students should know and be able to do.

In some states, curriculum frameworks have been adopted based on traditional academic standards rather than outcome-based constructivist standards, but many frameworks were originally or still based on student-centered learning and constructivism such as reform mathematics, whole language and Inquiry-based Science which have been controversial in some states and communities. High school graduation examinations tie awarding of diplomas to demonstration of meeting the standards set out in the frameworks.

MEANING OF SYLLABUS

Syllabus is a part of curriculum. Syllabus is a plan of learning experiences of a particular subject/Unit/activity to be provided to the learners to meet their needs to a particular standard in a year / semester.

Syllabus is a document which derives its contents form the curriculum.

- ✓ It is a summary or an outline of a course of studies.
- ✓ It is a programme of lessons
- ✓ Syllabus is a designed by the experienced teachers.

Syllabus includes

- Objectives of teaching the particular subject.
- Subject matters in the particular subject.
- Methods, materials and media
- Evaluation and guidance
- References

Purpose of Syllabus

- Fair and impartial understanding between the instructor and students.
- Setting clear expectations of material to be learned.
- Setting clear expectations of behaviour in the classroom.
- Providing a road map of course organization.

DEFINTION OF SYLLABUS

The syllabus is a "contract between faculty members and their students, designed to answer students' questions about a course, as well as inform them about what will happen should they fail to meet course expectations."

ORGANISATION OF SYLLABUS (APPROACHES OF SYLLABUS)

There are different methods (or) approaches to organize mathematics syllabus.

- ✓ LOGICAL
- ✓ PSYCHOLOGICAL
- ✓ TOPICAL
- ✓ SPIRAL

LOGICAL APPROACH

The arrangement of content in the logical or natural sequence is called logical organization. It is based on the teacher's expertise and experience. The contents are organized logically in the following ways. Sequences from,

- Known to unknown
- Simple to complex
- Concrete to abstract
- Observation to reasoning

EXAMPLE:

- ➢ Set theory, relations and functions.
- ➢ Fundamental concepts of set theory are essential to learn relations and functions.
- ➢ Similarly understanding of the concepts of functions is necessary to study functions.

PSYCOLOGICAL AP PROACH

The content is organized according to the psychological needs of the students. The student's age, maturity, interest, needs, level of understanding, power of assimilation and previous knowledge are base to select context.

For EXAMPLE, the school curriculum is organized in different stage as,

- In nursery schools, the child manipulates the world through action using sensory organ
- The child begins to represent the external word through symbols. Language is essential for thinkingat this stage.
- Next stage in the class room, extensive use of audio visual aids, demonstration, practical work, field works are recommended
- The child is capable of carrying out mental operations and tackles any problem. the context and experiences promote logical reasoning.

TOPICAL APPROACH

The topic introduced in a class to be completed in the same class.

Topical arrangement needs all the portion of a topic graded according to the increasing under of difficulty.

- It is not a psychological approach
- Some topics are more complex and difficult for the students to understand Content oriented, not child oriented.

SPIRRAL APPROACH

In this method a topic is split up into smaller independent units according to the Order of difficulty, suiting the mental capacity of the students and the units are arranged progressively broadening and deepening of the contexts throughout school period.

EXAMPLE

In algebra, solution of equation one unknown, two unknown, three unknown and practical problem are given one year after another.

- It provides revision and time, to master learning
- Graded according to difficult
- Helpful for understanding and appreciate its use to other subjects.

DIFFERENCES BETWEEN CURRICULUM AND SYLLABUS

CURRICULUM	SYLLABUS
1. Curriculum is the complete set of taught material in a school system.	Syllabus is the content, the list of topics, concept to be taught.
2.It is prescriptive.	It is descriptive.
3.Curriculum prescribe the objective of the system.	Syllabus describes the means to achieve them.
4.Curriculum is for a course.	Syllabus is for a subject.
5.Curriculum is the subset	Syllabus is the subject of curriculum.
6.Curriculum give a more focused outline for a particular course.	Syllabus gives a more focused outline for a particular subject.
7.Base line for syllabus.	Base line for text book
8.More useful for administration, general guidance.	More useful of teacher.
9.Broad	objectively.